[INCH-POUND]
A-A-55512B
18 August 2014
SUPERSEDING
A-A-55512A
11 June 2001

COMMERCIAL ITEM DESCRIPTION

RESISTOR, THERMALLY SENSITIVE (THERMISTOR)

The General Services Administration has authorized the use of this

Commercial Item Description (CID) for all federal agencies.

1. SCOPE. This (CID) covers the general requirements for a thermistor. This thermistor is a stainless steel probe with a flange, for air (open ended) and liquid (sealed ended) measurements. These parts come with insulated leads in four different lengths. Thermistors covered by this CID are intended for commercial/industrial applications and are not used in military systems needing stringent environmental and electrical requirements.

* 2. CLASSIFICATION OR PART IDENTIFICATION NUMBER (PIN). This CID uses a classification system which is included in the PIN as shown in the following examples (see 7.1).

AA55512	-	Z	510	J	04
CID number		Curve (see table I)	Resistance value (see 3.4 and table II)	Resistance tolerance (see 3.6)	Lead length (see 3.7)

3. SALIENT CHARACTERISTICS.

3.1 Interface and physical dimensions. The thermistor supplied to this CID shall meet the interface and physical dimensions as specified herein (see figure 1).

3.2 Material. The material shall be as specified herein.

3.2.1 Body. The body of the thermistor shall be of negative temperature coefficient (NTC) material.

3.3 Finish. The finish shall be to the best commercial practices.

3.4 Resistance. The resistance measured at +25°C and expressed in ohms shall be as specified in table I and is identified by a three digit number. The first two digits represent significant figures, and the last digit specifies the number of zeros to follow.

Beneficial comments, recommendations, additions, deletions, clarifications, etc., and any data that may improve this document should be sent to: DLA Land and Maritime, ATTN: VAT, Post Office Box 3990, Columbus, OH 43218-3990, or emailed to resistor@dla.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at https://assist.dla.mil.

TABLE I. Minimum/maximum resistance value and curve.

Resistance (ohms) at +25°C	Resistance temperature curve
40 to 250	A
470 to 2.2 k	Y
1.7 k to 33 k	Z
33 k to 100 k	W
47 k to 150 k	M
47 k to 220 k	V
470 k to 1.2 M	P
3.1 M to 40 M	R

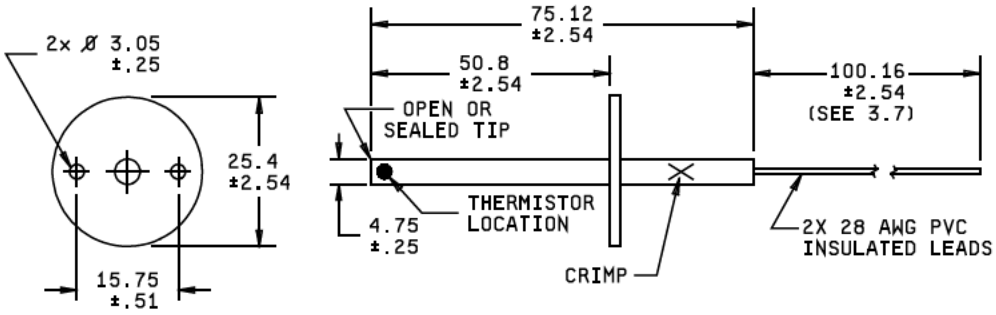
3.5 Resistance at temperatures other than 25°C. Resistance of temperatures other than +25°C shall be as specified in table II.

3.6 Resistance tolerance. The thermistor specified herein is available in resistance tolerances F (±1 percent), G (±2 percent), J (±5 percent), and K (±10 percent) plus the resistance deviation at specified temperature as specified in table II.

* 3.7 Lead length. The leads shall be number 28 gauge AWG, black polyvinylchloride (PVC), insulated wire and are available in 4 inch (10.16 cm), 6 inch (15.24 cm), 12 inch (30.48 cm), or 24 inch (60.96 cm) lengths.

3.8 Resistance temperature coefficient. The resistance temperature coefficient shall be as specified in table II.

* 3.9 Operating temperature. The operating temperature shall be -10°C to +95°C.



*

mm	Inches	mm	Inches
0.25	0.010	15.75	0.62
0.51	0.02	25.4	1.0
2.54	0.10	50.8	2.0
3.05	0.12	75.12	2.957
4.75	0.19	100.16	3.9433

FIGURE 1. Resistor, thermally sensitive (thermistor probe).

* 3.10 Storage temperature. The operating temperature shall be -20°C to +105°C.

3.11 Marking. Marking of the individual thermistor supplied to this CID is not required; however, each unit package shall be marked with the manufacturer's standard commercial PIN.

TABLE II. Resistance temperature coefficient.

		CURVE A			CURVE Y			CURVE Z			CURVE W		
°C	°F	RT/R25	Max dev	NTC	RT/R25	Max dev	NTC	RT/R25	Max dev	NTC	RT/R25	Max dev	NTC
-60	-76	43.0			75.69	9.7		140.58	4.1				
-55	-67	31.9			54.78			96.40					
-50	-58	24.3	18.3	5.6	40.06	8.2	6.1	67.06	3.5	7.2			
-40	-40	14.4	15.4	4.9	22.05	6.8	5.8	33.66	3.0	6.7	40.16	3.0	
-30	-22	8.93	12.5	4.5	12.56	5.6	5.4	17.10	2.4	6.2	20.64	2.4	6.5
-20	-4	5.69	9.9	4.4	7.422	4.4	5.1	9.712	1.9	5.8	11.03	1.9	5.1
-15	5	4.56			5.777			7.296			8.175		
-10	14	3.68	7.4	4.3	4.527	3.3	4.8	5.534	1.4	5.5	6.119	1.4	5.7
-5	23	2.99			3.58			4.234			4.615		
0	32	2.45	5.0	3.9	2.848	2.3	4.5	3.266	1.0	5.1	3.510	1.0	5.4
5	41	2.02			2.282			2.540			2.690		
10	50	1.68	2.7	3.8	1.838	1.2	4.2	1.99	0.5	4.6	2.078	0.5	5.1
15	59	1.42			1.492			1.571			1.617		
20	68	1.18	0.5	3.4	1.216	0.3	4.0	1.249	0.1	4.5	1.267	0.1	4.8
25	77	1.0		3.1	1.0		3.9	1.0		4.4	1.0		4.7
30	86	0.854	1.4	3.0	0.826	0.6	3.8	0.806	0.2	4.3	0.794	0.2	4.6
35	95	0.732			0.686			0.653			0.635		
40	104	0.628	3.2	2.9	0.573	1.4	3.6	0.533	0.6	4.0	0.511	0.6	4.3
45	113	0.537			0.480			0.437			0.413		
50	122	0.464	5.0	2.8	0.405	2.2	3.4	0.36	1.0	3.8	0.336	1.0	4.1
55	131	0.403			0.343			0.299			0.275		
60	140	0.350	6.7	2.7	0.291	3.0	3.2	0.249	1.2	3.6	0.23	1.2	3.9
65	149	0.305			0.249			0.208			0.167		
70	158	0.267	8.2	2.6	0.214	3.6	3.0	0.175	1.6	3.4	0.155	1.6	3.7
75	167	0.238			0.184			0.148			0.129		
80	176	0.208	9.8	2.5	0.159	4.3	2.8	0.126	1.8	3.3	0.108	1.9	3.5
85	185	0.183			0.138			0.107			0.091		
90	194	0.163	11.2	2.4	0.120	4.9	2.7	0.092	2.1	3.1	0.077	2.1	3.3
95	203	0.145			0.105			0.079			0.065		
100	212	0.130	12.6	2.3	0.092	5.5	2.5	0.068	2.4	2.9	0.057	2.4	3.2
105	221	0.117			0.081			0.059			0.048		
110	230	0.105			0.072	6.1	2.4	0.061	2.6	2.8	0.041	2.6	3.0
115	239	0.094	13.5	2.2	0.064			0.045			0.035		
120	248	0.085			0.057	6.7	2.3	0.039	2.9	2.7	0.030	2.9	2.9
125	257	0.075	15.0	2.1	0.050	6.9		0.034	3.0	2.6	0.026		
130	366							0.030	3.1	2.5	0.023	3.1	2.8
140	284							0.024	3.4	2.4	0.017	3.4	2.7
150	302							0.019	3.5		0.013	3.5	

TABLE II. Resistance temperature coefficient - Continued.

		CURVE M			CURVE V			CURVE P			CURVE R		
°C	°F	RT/R25	Max dev	NTC	RT/R25	Max dev	NTC	RT/R25	Max dev	NTC	RT/R25	Max dev	NTC
-60	-76												
-55	-67							159.0			479.0		
-50	-58	56.49	3.5	6.9	90.06	5.0	7.2	110.1			307.0		
-40	-40	29.49	3.0	6.3	44.03	4.2	7.0	55.5			128.0		
-30	-22	16.03	2.4	5.9	22.35	2.9	6.6	28.4			54.0		
-20	-4	9.04	1.9	5.6	11.80	2.7	6.2	14.65	13.7	6.8	23.38		
-15	5	6.873			8.691			10.51			15.84		
-10	14	5.267	1.4	5.2	6.453	2.1	5.9	7.61	11.7	6.4	10.85		
-5	23	4.070			4.830			5.56			7.508		
0	32	3.166	1.0	4.9	3.643	1.4	5.5	4.09	9.9	6.0	5.246	13.2	7.1
5	41	2.461			2.774			3.04			3.7		
10	50	1.958	0.5	4.7	2.128	0.8	5.2	2.28	8.2	5.7	2.633	10.9	6.7
15	59	1.556			1.644			1.72			1.891		
20	68	1.243	0.1	4.4	1.278	0.2	5.0	1.31	6.6	5.4	1.369	8.7	6.4
25	77	1.0		4.2	1.0		4.9	1.0			1.0		
30	86	0.809	0.2	4.0	0.787	0.4	4.7	0.77	5.2	5.1	0.736	6.8	6.1
35	95	0.658			0.623			0.60			0.546		
40	104	0.538	0.6	3.7	0.497	0.9	4.5	0.47	3.7	4.9	0.407	4.9	5.8
45	113	0.443			0.398			0.37			0.307		
50	122	0.366	1.0	3.6	0.321	1.5	4.3	0.29	2.4	4.6	0.232	3.2	5.5
55	131	0.304			0.26			0.23			0.176		
60	140	0.253	1.2	3.4	0.212	1.9	4.1	0.19	1.1	4.4	0.136	1.5	5.2
65	149	0.212			0.173			0.15			0.105		
70	158	0.179	1.6	3.2	0.143	2.4	3.9	0.12		4.2	0.081	0.0	5.0
75	167	0.151			0.118			0.10			0.064		
80	176	0.128	1.9	3.1	0.098	2.7	3.7	0.08	1.0	4.0	0.050	1.4	4.8
85	185	0.109			0.081			0.066			0.039		
90	194	0.093	2.1	2.9	0.068	3.2	3.5	0.054	2.1	3.8	0.031	2.8	4.6
95	203	0.080			0.057			0.045			0.025		
100	212	0.069	2.4	2.8	0.048	3.6	3.4	0.037	3.1	3.6	0.020	4.1	4.4
105	221	0.060			0.041			0.031			0.016		
110	230	0.052	2.6	2.7	0.035	4.0	3.2	0.026	4.0	3.5	0.013	5.2	4.2
115	239	0.045			.03			0.022			0.011		
120	248	0.039	2.9	2.7	.025	4.4	3.1	0.019	4.9	3.3	0.009	6.4	4.0
125	257	0.034	3.0	2.6	.022	4.5	3.0	0.016	5.3	3.2	0.007	7.0	3.9
130	366	0.030	3.1	2.5	.019	4.7	3.0	0.013	5.8	3.2	0.006	7.6	3.8
140	284	0.023	3.4	2.4	.014	5.0	2.9	0.01	6.6	3.1	0.004	8.6	3.7
150	302	0.018	3.5	2.3	.011	5.4	2.8	0.007	7.3	2.9	0.003	9.6	3.5

* 3.12 Pure tin. The use of pure tin, as an underplate or final finish is prohibited both internally and externally. Tin content of resistor components and solder shall not exceed 97 percent, by mass. Tin shall be alloyed with a minimum of 3 percent lead, by mass.

* 3.13 Recycled, recovered, environmentally preferable, or biobased materials. Recycled, recovered, environmentally preferable, or biobased materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

* 3.14 Workmanship. Resistors shall be processed in such a manner as to be uniform in quality and shall be free from other defects that will affect life, serviceability, or appearance.

4. REGULATORY REQUIREMENTS. The offeror/contractor is encouraged to use recovered materials to the maximum extent practicable, in accordance with 23.403 of the Federal Acquisition Regulation (FAR).

5. PRODUCT CONFORMANCE PROVISIONS.

5.1 Product conformance. The products provided shall meet the salient characteristics of this CID, conform to the producer's own drawings, specifications, standards, and quality assurance practices, and be the same product offered for sale in the commercial market. The Government reserves the right to require proof of such conformance.

6. PACKAGING. Preservation, packing, and marking shall be as specified in the contract or order.

7. NOTES.

7.1 PIN. The PIN should be used for Government purposes to buy commercial products to this CID. See section 2 for PIN format example.

* 7.2 Environmentally preferable material. Environmentally preferable materials should be used to the maximum extent possible to meet the requirements of this specification. As of the dating of this document, the U.S. Environmental Protection Agency (EPA) is focusing efforts on reducing 31 priority chemicals. The list of chemicals and additional information is available on their website at http://www.epa.gov/osw/hazard/wastemin/priority.htm. Included in the EPA list of 31 priority chemicals are cadmium, lead, and mercury. Use of these materials should be minimized or eliminated unless needed to meet the requirements specified herein (see Section 3).

* 7.3 Commercial and Government Entity (CAGE) code. For ordering purposes, inventory control, and submission of these resistors to DLA Land and Maritime under the Military Parts Control Advisory Group (MPCAG) evaluation program, CAGE code 58536 should be used.

* 7.4 Source of documents.

FEDERAL REGULATIONS

FAR 23.403 - Federal Acquisition Regulations (FAR) – Use of Recovered Materials and Biobased Products.

(Copies of these documents are available online at https://acquisition.gov/far/index.html.)

7.5 Ordering data. The contract or order should specify the following:

a. CID document number, revision, and CID PIN.

b. Product conformance provisions.

c. Packaging requirements.

* 7.6 Commercial products. As part of the market analysis and research effort, this CID was coordinated with the following manufacturers of commercial products. At the time of CID preparation and coordination, these manufacturers were known to have commercial products that would meet the requirements of this CID. (NOTE: This information should not be considered as a list of approved manufacturers or be used to restrict procurement to only the manufacturers shown).

MFR's CAGE	MFR's name and address
* 56866	QTI Sensing Solutions 2108 Century Way Boise, ID 83709-2862 Toll Free: 1-800-554-4784 Fax: 208-376-4754 Email: qtisales@thermistor.com Website: www.thermistor.com

7.7 Part number (P/N) supersession data. This CID supersedes the following MFR's P/N as shown in table III. This information is being provided to assist in reducing proliferation in the Government inventory system.

TABLE III. P/N supersession data.

CID dash number (see table I)	MFR's CAGE	MFR's P/N 1/
AA55512-*******	56866	QTA**-****-**

1/ The manufacturers P/N shall not be used for procurement to the requirements of this CID. At the time or preparation of this CID, the aforementioned commercial products were reviewed and could be replaced by the CID PIN shown.

* 7.8 Government users. To acquire information on obtaining these resistors from the Government inventory system, DLA Land and Maritime, ATTN: FMX, Post Office Box 3990, Columbus, OH 43218-3990, or telephone (614) 692-3677.

* 7.8.1 National stock numbers (NSN). This section is not applicable to this CID.

* 7.9 Changes from previous issue. The margins of this CID specification sheet are marked with an asterisk to indicate where changes from the previous issue were made. This was done as a convenience only and the Government assumes no liability whatsoever for any inaccuracies in these notations. Bidders and contractors are cautioned to evaluate the requirements of this document based on the entire content irrespective of the marginal notations and relationship to the last previous issue.

MILITARY INTERESTS:

Custodians:
NAVY - EC
DLA - CC

CIVIL AGENCY COORDINATING ACTIVITY:

GSA - FAS

Preparing activity:
DLA - CC

Project 5905-2014-046

NOTE: The activities listed above were interested in this document as the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at https://assist.dla.mil.